



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

JAN 28 1999

Gordon Cheniae, Field Director
Native American Minerals/Arizona Land Exchange Teams
Bureau of Land Management
222 North Central Avenue
Phoenix, AZ 85004-2208

Dear Mr. Cheniae:

The U.S. Environmental Protection Agency (EPA) has reviewed the Ray Land Exchange Draft Environmental Impact Statement (DEIS). Our review and comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA implementation regulations at 40 CFR 1500-1508, and Clean Air Act Section 309. Our comments also reflect comments we previously made to you regarding the scoping notice (February 9, 1995, and June 30, 1995, letters from David Farrel, EPA); to Shela McFarlin of your staff regarding the Preliminary DEIS (January 19, 1998, letter from Jeanne Geselbracht, EPA); and to you, your staff, and Asarco in several other letters, meetings, and conference calls between December, 1997, and October, 1998.

Asarco Incorporated (Asarco), a mining company, has proposed to trade private lands ("offered lands") for public lands ("selected lands") administered by the Bureau of Land Management (BLM) near Asarco's Ray Complex facilities and other areas in Pinal and Gila counties, Arizona. Asarco wishes to acquire 8,196 acres of federal surface and mineral estate and 2,780 additional acres of federal mineral estate in exchange for 7,300 acres of land currently owned by Asarco, which would be acquired by BLM. Asarco's project purpose is to consolidate its land holdings within and adjacent to areas of ongoing mineral development at the Ray Complex and the Santa Cruz In-Situ Copper Mining Research Project. BLM's project purpose is to acquire lands containing important natural resources and other values and move toward achieving its land tenure adjustment objectives, as stated in the Phoenix and Kingman Resource Area Resource Management Plans.

Over the past several decades, approximately one billion tons of material have been excavated at the Asarco Ray complex. The proposed action would enable Asarco to excavate and process approximately three billion more tons of material over the next 40 years. In several meetings, letters, and conference calls with BLM since scoping for this project began in 1994, EPA has recommended that the DEIS provide certain information that we believe would be useful and relevant in a NEPA analysis for a land exchange where the foreseeable future uses of mining are known. In our comment letter on the preliminary DEIS, we stated that the document did not appear to have evaluated all reasonable alternatives and strongly

recommended that additional information regarding the alternatives be included in the DEIS. In that letter and several others to BLM, we also recommended that the potential impacts of the land exchange and the foreseeable future mining be discussed in much greater detail in the DEIS and specifically outlined the needed information.

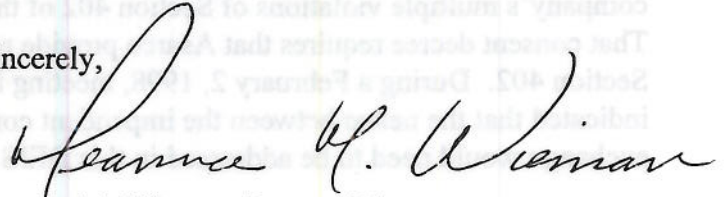
Although BLM has not received an acceptable mine plan of operations (MPO) from Asarco, it appears that Asarco has fairly specific plans for the selected parcels. We believe that additional detailed information regarding geology, geochemistry, hydrogeology, and biological resources is relevant and necessary for this analysis to constitute full disclosure under NEPA. It is also evident that all reasonable alternatives have not been evaluated and that impacts of foreseeable activities on the selected lands have not been sufficiently addressed in the DEIS. We are extremely dismayed that BLM has ignored most of our recommendations in finalizing the DEIS and are particularly troubled that the DEIS was published at a time when our headquarters office was still discussing the issues with BLM headquarters and the two agencies had not yet come to a resolution.

We have rated this DEIS as EO-2 – Environmental Objections-Insufficient Information. We have strong objections to the proposed project because we believe there is potential for significant environmental degradation that could be corrected by project modification or other feasible alternatives. The scope of alternatives and the impacts analysis are not sufficient to present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public, as required by 40 CFR 1502.14. Therefore, the most appropriate alternative cannot be determined at this time without additional information. In addition, we believe that the proposed action and its presentation in the DEIS sets a precedent for future actions that collectively could result in significant environmental impacts. We continue to contend that a substantial amount of information should be added to the EIS for BLM to meet its public disclosure obligations.

Our specific comments are enclosed and include reiterations of comments we have made in the past regarding this project, as well as more specific comments regarding issues that did not receive the level of detailed analysis in the DEIS which we believe is necessary for a sufficient environmental analysis. We urge BLM to reconsider our comments and substantially revise this document. One way to accomplish this would be to circulate a revised DEIS rather than a Final Environmental Impact Statement (FEIS). We recommend that BLM seriously consider this option. The Revised DEIS or FEIS should include additional information regarding other alternatives, the affected environment, and environmental consequences, including indirect and cumulative impacts. The Revised DEIS or FEIS should address in much greater detail site geology and geochemistry, hydrology and hydrogeology, existing and potential future water and air quality, riparian and aquatic resources, facilities design, minerals and land management, environmental justice, and mitigation measures.

Please send three copies of the Revised DEIS or FEIS to this office at the same time it is officially filed with our Washington, D.C., office. We wish to discuss these issues further with you. We will contact you to schedule a conference call between our agencies. In the meantime, if you have any questions, please call me at (415) 744-1566, or have your staff contact Jeanne Geselbracht at (415) 744-1576.

Sincerely,



Deanna M. Wieman, Deputy Director
Cross-Media Division

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Enclosures: (1) EIS Rating Definitions
(2) EPA Comments

cc: Dick Sanderson, EPA HQ, Office of Federal Activities

Ellen Athas, Council on Environmental Quality

John Leshy, Department of Interior, Office of the Solicitor

Marjorie Blaine, U.S. Army Corps of Engineers - Tucson

Lt. John P. Carroll, U.S. Army Corps of Engineers - Los Angeles

Dennis Turner, Arizona Department of Environmental Quality

Nancy Wrona, Arizona Department of Environmental Quality

Tom Scarticcini, Asarco

Don Gabrielson, Pinal County Air Pollution Control District

Pat Mariella, Gila River Indian Community

Shela Mc Farlin, BLM - Phoenix

Cumulative Impacts

In May, 1998 the United States, Arizona, and Asarco entered a consent decree regarding that company's multiple violations of Section 402 of the Clean Water Act (CWA) at the Ray mine. That consent decree requires that Asarco provide remedial actions to comply with CWA Section 402. During a February 2, 1998, meeting between Asarco, BLM and EPA, EPA staff indicated that the nexus between the impendent consent decree and the proposed land exchange would need to be addressed in this DEIS.

We disagree with BLM's response in the DEIS (p. 1-18) to our previous statements that the Section 402 and 404 Clean Water Act actions at the Ray mine are connected and relevant to the land exchange and its impacts. The DEIS states that the land exchange and foreseeable mining activities that will require Clean Water Act permits are not connected, cumulative, or similar actions as defined at 40 CFR 1508.25. We believe this statement is completely erroneous under NEPA and strongly recommend it be deleted from the EIS. The foreseeable actions resulting from the land exchange and compliance with the Consent Decree would indeed result in both indirect and cumulative impacts, as defined by the regulations, and should be included in the scope of the EIS as defined at 40 CFR 1508.25. Indirect impacts are defined as impacts that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." [40 CFR 1508.8]. "'Cumulative impact' is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." [40 CFR 1508.7].

According to the DEIS, Asarco seeks to consolidate its land holdings within and adjacent to areas of ongoing mineral development at the Ray site and other sites, and to use the selected lands to support and expand current mining-related operations. In addition, Asarco has submitted to EPA a preliminary engineering plan for compliance with the consent decree. Many of these options involve use of the selected lands from the land exchange, constituting a direct link between the Consent Decree and the land exchange. For example, at least two small Selected Land parcels (RM- 2 and RM-3) are located near upper Mineral Creek between Big Box Dam and the tunnel intake. One of Asarco's Consent Decree alternatives would involve fill of most of a 34-acre wetland in this area, plus all of the area that has already been approved for fill in the existing Ray 404 permit. This alternative also involves extending the Mineral Creek diversion tunnel further up the creek to the southeast corner of section 34. RM-2 and RM-3 would be filled as an indirect impact of the extended tunnel diversion if the diversion ultimately allows for filling of the entire wetland. Because some of the actions

needed will require further CWA permitting, specifically under Section 404 of the CWA, Asarco has also begun discussing possible alternatives with the U.S. Army Corps of Engineers (COE), which administers that Section of the CWA.

Furthermore, on February 2, 1998, Asarco indicated that if upper Mineral Creek could be filled with mine material, Asarco might not need all of the Selected Land parcels in the proposed action. Under the Consent Decree, Asarco needs to take action that will bring the current Ray mine operations into compliance with the Section 402 of the Clean Water Act (CWA) and Asarco must assure that all future expansions will be in compliance with CWA Section 402. Inasmuch as the expansion of the Ray mine onto selected lands is both (1) the proposed action for the land exchange, and (2) considered in the alternatives for compliance with the consent decree, these actions appear to be connected and cumulative, as defined at 40 CFR 1508.25, and should be addressed appropriately in the EIS.

We believe that, in order for the impacts of the land exchange to be appropriately addressed in the EIS, the Consent Decree and its relationship to the land exchange should be thoroughly discussed. The discussion should disclose a reasonable range of options for compliance with the Consent Decree, as well as the potential impacts commensurate with those options (e.g., filling of 34-plus acres of wetlands in upper Mineral Creek). This information is needed so that the public, agencies, and decisionmaker are aware of the cumulative impacts associated with the land exchange and other related or unrelated actions, and can determine which alternatives would result in less environmental degradation.

In a February 9, 1998, letter to Shela McFarlin, BLM, Jeanne Geselbracht, EPA, asked for projections of tonnage of material to be moved over the mine life as well as the acreage the company would need to accommodate that material. Asarco has produced maps depicting various site alternatives for placing mined material in the future, including filling upper Mineral Creek. It is unclear what alternatives exist for keeping both the fill out of Mineral Creek and preventing the mine material on the slopes above Mineral Creek from leaching into the creek. The Revised DEIS or FEIS should provide estimates of mine material tonnage and acreage to accommodate it in order for different scenarios to be sufficiently developed to predict the potential impacts to Selected Land parcels for the land exchange EIS, as well as to determine the least environmentally damaging practicable alternative (LEDPA), in accordance with CWA 404(b)(1), and a preference for complying with the Consent Decree.

Alternatives Analysis

The Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of NEPA require that an EIS "provide full and fair discussion of significant environmental impacts and shall inform the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment....It shall

be used by Federal officials in conjunction with other relevant material to plan actions and make decisions.” [40 CFR 1502.1].

Furthermore, in accordance with 40 CFR 1502.14, the EIS should “present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public.” EPA believes that the DEIS does not include an appropriate alternatives analysis. It appears that all reasonable alternatives have not been rigorously explored and objectively evaluated as required by 40 CFR 1502.14(a).

EPA believes that a true No Action Alternative should be evaluated in the EIS. The DEIS assumes that if the land exchange does not occur, the selected lands will, nevertheless, be used by Asarco for mining purposes under a BLM-managed mine plan of operations (MPO). We agree that the EIS should analyse the predictable or potential consequences of “no action” by the BLM (See CEQ’s 40 Questions Memorandum, Q#3). We do not agree, however, that no action (i.e., no land exchange) would necessarily lead to MPOs on all of the parcels. It is likely that Asarco would seek MPOs for many selected land parcels, but its allowable activities could be somewhat different under an MPO than under a land exchange after which BLM has no further management authority. These differences should be described and discussed in more detail in the Revised DEIS or FEIS. For example, just as an MPO EIS would include a No Action Alternative (i.e., no MPO alternative), we believe that such a no action alternative should also be included in this land exchange EIS for purposes of providing a benchmark in order to compare the magnitude of environmental effects of the action alternatives.

Alternatives including the No Action Alternative may also depend on the validity of mining claims on the Selected Lands. The DEIS (p. 1-18) states that “Asarco has filed mining claims to nearly all of the selected lands and has indicated its intent to pursue mining activities on these lands regardless of the outcome of the land exchange.” Elsewhere, the DEIS (p. 4-20) states, “Under current mining laws, Asarco could utilize existing claims to pursue the foreseeable mining uses on all of the selected lands except Parcel CH-5 and portions of the Chilito/Hayden parcels.” This last statement, however, may not be accurate. The EIS should identify the lode and mill site claims that are included in the proposed project and discuss their validity. According to BLM’s Mineral Report on the Selected Lands, Asarco has five lode claims and 61 millsite claims in parcels CB-2, CB-3, and CB-4. This is not possible under the 1872 Mining Law because only one millsite claim up to five acres in size may be associated with each lode claim. The Revised DEIS or FEIS should discuss the alternatives in the context of the validity of existing claims and BLM’s authorities under the 1872 Mining Law as amended, the Federal Land Policy and Management Act, and other relevant statutes and regulations.

Several action alternatives may also exist for the offered and selected lands which meet the stated project purposes. We believe that, in addition to the Buckeye and Copper Butte alternatives, there may be other selected land parcels that could be deleted from the proposed package based on the potential environmental impacts of foreseeable future uses on those parcels. However, the DEIS lacks sufficient information to determine the impacts of those uses on resources or to allow for a comparison of resources on selected lands and offered lands. Until more information is provided in the EIS regarding potential environmental impacts and their significance, the full spectrum of reasonable alternatives cannot be determined.

Additional reasonable alternatives to the offered lands packages currently in the DEIS should be developed and included in the EIS based on prioritization and comparison of the offered land parcels, and commensurate with the additional selected land alternatives that we recommend be developed. Developing alternatives that involve deletion of certain parcels, based on the significance of potential impacts of foreseeable future uses of those parcels, is consistent with 40 CFR 1502.14. For example:

- Neither BLM's Mineral Report nor the DEIS describe the mineral potential or the type of claims (millsite or lode claims) that Asarco has on parcel CB-5. It is unclear, therefore, that CB-5 is really a necessary parcel to carry out Asarco's stated project purpose. It is unclear why BLM does not obtain the entire section 24 from the State of Arizona for inclusion in the White Canyon Area of Critical Environmental Concern (ACEC).
- The DEIS should discuss why the New Water Mountain parcel was eliminated from the proposal rather than the Tomlin parcels.
- The Hackberry Alternative was eliminated from further consideration in the DEIS because Asarco already has plans to use Hackberry Gulch as a tailings impoundment. EPA believes this is not an appropriate reason for eliminating this alternative. Asarco has plans for *all* of the selected land parcels, but this does not exempt all parcels from deletion from Asarco's selected land package.
- As stated on page 2 above, Asarco is currently discussing the requirements for a Clean Water Act Section 404 permit with COE for filling upper Mineral Creek with leachable rock. If Asarco is permitted to do so, it would not need as much of the Selected Land. This is not discussed anywhere in the DEIS. The Revised DEIS or FEIS should describe the acreage that such a facility would use in this case and the reduction in acreage of Selected Land that would be needed by Asarco. The potential impacts associated with such an alternative should be described and discussed in the Revised DEIS or FEIS.

Environmental Impacts

EPA's past scoping comments to BLM on the Ray Land Exchange recommended providing as much information as possible in the EIS regarding the effects of mining activities on the selected lands. The DEIS lacks the specificity of impacts which we believe is necessary in order to provide a clear basis for choice among options by the decisionmaker and the public. The DEIS (p. 1-19) states, "Until a detailed mine plan is prepared by Asarco, BLM's attempt at describing anticipated detailed mining activities, suitable for a specific analysis, would be highly speculative." We are disappointed by Asarco's unwillingness to provide the information needed, and puzzled as to why BLM has not more diligently pursued this information from Asarco. Sufficient information for a more meaningful NEPA analysis would not have to be in the form of a complete mine plan. BLM is expected to work with the mining company to obtain information necessary for the NEPA analysis. We believe that Asarco has very specific plans for the selected lands at this time, including mining rates it hopes to attain within the first nine years of the Ray expansion as well as the Copper Butte project. For example, the socioeconomics section of Chapter 4 of the DEIS indicates that Asarco has an expected rate of production at the Copper Butte mine over a nine-year period (pp. 4-39-42).

Furthermore, Asarco is evaluating best available demonstrated control technology (BADCT) for purposes of meeting Arizona groundwater standards that would be included in its Aquifer Protection Program (APP) permit for the Ray complex. Arizona BADCT, however, does not necessarily ensure that water quality standards will be met because the definition of BADCT is not based on water quality. In fact, at the February 2, 1998, meeting, Asarco indicated that they might not be able to line the leach pads because of steep slopes on some of the selected parcels. In addition, at a January 15, 1998, meeting, Derek Cooke of Asarco stated that, assuming one pinhole per acre on a lined leach pad, the amount of copper seeping into groundwater and into Mineral Creek would result in an exceedence of water quality standards. Moreover, the tailings impoundment in Elder Gulch, which is a fairly new facility using current technology in Arizona, is already adversely affecting groundwater with contaminated seepage. Asarco intends to use parcel RM-18 for another tailings impoundment. The Revised DEIS or FEIS should indicate whether heap leach and tailings facilities would be lined, to what extent, and what general liner thickness and construction procedures would most likely be followed to provide for stability and prevent leakage. The Revised DEIS or FEIS should also discuss the specific potential impacts that a tailings impoundment in RM-18 could cause should seepage occur. The document should discuss BADCT and how it would apply to the various foreseeable actions and whether it would be protective of groundwater quality.

We urge BLM to obtain more detailed information from Asarco for this Revised DEIS or FEIS. Pursuant to 40 CFR 1502.22(a), "[i]f the incomplete information relevant to

reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement." In addition, agencies shall ensure the professional integrity, including scientific integrity, of the discussions and analyses in EISs, as well as identify any methodologies used (40 CFR 1502.24). A discussion of BADCT required for the proposed project should be included in the Revised DEIS or FEIS. The discussion should include an analysis of any shortcomings inherent in a system that permits groundwater pollution control technology, even if it is not 100 percent effective.

Under the Consent Decree, Asarco is also currently analysing alternatives for filling waters of the U.S. for the purpose of obtaining a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers. BLM stated in a March 12, 1998, meeting (see meeting minutes) that by the time the final EIS is filed, the selected alternative for the 404 fill action should be known and would be discussed in greater detail in that document. The Revised DEIS or FEIS should include this information pursuant to 40 CFR 1500.2(c) and 1502.25(a).

The DEIS (p. 1-18) states that issuance of a National Pollutant Discharge Elimination System (NPDES) permit by EPA to Asarco would constitute a federal action subject to NEPA and, thus, future actions would be analysed at the time of permitting. This is true in the case of the Copper Butte or Buckeye sites, as they would be considered new sources. Any future expansions of the Ray complex, however, would not be analysed under NEPA because renewed NPDES permits for existing sources are not subject to NEPA analysis. Furthermore, the U.S. Army Corps of Engineers has informed us that they do not circulate draft environmental assessments for public review. We are not confident, therefore, that future NEPA analyses conducted by COE for a Clean Water Act Section 404 permit for the proposed project would undergo public scrutiny to the degree we believe is necessary for the magnitude of the potential impacts associated with this land exchange. We recommend that paragraph five on page 1-18 of the DEIS be revised to more accurately reflect the situation.

Water Resources

EPA believes that much more detailed information regarding affected environment and environmental consequences is needed in the Revised DEIS or FEIS. For example, the Revised DEIS or FEIS should include detailed sections on geology, hydrogeology, and hydrology. How much groundwater and surface water is Asarco using? Is there a cone of depression? Will there eventually be pit lakes at Ray and Copper Butte? Is there any flow toward the Gila River? How would the Ray complex and future mining at Copper Butte affect Mineral Creek, Walnut Creek, the Gila River, and other waters of the U.S.? Describe and discuss the hydrogeology in the Casa Grande area. We are aware that data on groundwater in the Ray complex area are being collected as part of the APP permit for this project. Baseline information on groundwater and surface water, as well as modelling to

predict future impacts to surface waters and groundwater are necessary in the Revised DEIS or FEIS.

The Revised DEIS or FEIS should include geochemical characterizations of the rock that would be excavated from or deposited on selected lands. The Revised DEIS or FEIS should also analyse the potential geochemical reactions and interactions that could result from the foreseeable future actions on the selected lands, including actions at waste rock piles, leach pads, tailings impoundments, and open pits. Acid-base accounting should be conducted, including kinetic testing if necessary, to predict the acid generation potential associated with activities on selected lands. The Revised DEIS or FEIS should discuss how the APP would be expected to affect the prevention of groundwater contamination.

Asarco has four different process materials that could affect groundwater and surface water chemistry. These are (1) barren waste rock (no copper--but may have sulfide and/or toxic leachable constituents); (2) run of mine ore (ROM) which is low grade ore, both oxide and sulfide, which Asarco plans to leach without any crushing or preparation; (3) oxide ore, most of which will be crushed and agglomerated (what percentage?); and (4) tailings. In its geochemical characterization Asarco should provide estimated percentages of the three rock types and tailings at Ray and Copper Butte, and provide the geochemistry requested, including leach tests. The character of the interstitial fluids in the tailings should also be provided along with any Arizona Aquifer Protection Program (APP) data or Clean Water Act violation-related data with regard to the existing tailings facilities. EPA has requested a copy of the geochemistry reports but has never received them.

The Revised DEIS or FEIS should include a discussion of potential threats to groundwater and surface water quality of Mineral Creek and the Gila River from seeps related to the proposed barren rock, ROM, and Oxide heaps. The discussion should also address whether and how potential threats to surface waters from the foreseeable actions would be entirely and satisfactorily mitigated by provisions of the consent decree, the NPDES permit, and the APP. The document should also describe what is needed for any proposed facilities in addition to those provided for in the consent decree. It should also discuss potential impacts, including ecological risks from the tailings facility to Mineral Creek and the Gila River.

Asarco has indicated that all waste rock, such as that proposed for placement in RM-17, is potentially leachable. If this is the case, we would recommend that all waste rock and potentially leachable material be placed on properly engineered, lined heap leach pads to ensure complete capture of pregnant solution. The Revised DEIS or FEIS should discuss whether areas can be assigned for placing different kinds of rock (e.g., leachable sulfidic waste rock, non-leachable sulfidic waste rock, non-leachable oxide waste rock, potentially leachable ROM, oxide ore to be leached, etc.) and whether this would make a difference in the potential impacts to surface water and groundwater.

Under Section 1431 of the Safe Drinking Water Act, it is unlawful to discharge a contaminant to an underground source of drinking water (USDW) via injection wells, surface impoundments, or in any other manner if that discharge may pose an imminent and substantial endangerment to the health of persons. Endangerment is considered imminent and substantial if contaminants could migrate to a current or future supply of groundwater (i.e., USDW) in a concentration that could cause an exceedence of a primary drinking water standard (MCL as described at 40 CFR 141 and 142), or otherwise affect the health of persons. A USDW is generally defined as any aquifer that 1) currently supplies any public water system, OR 2) contains a sufficient quantity of water to supply a public water system (25 or more persons), AND currently supplies drinking water for human consumption or has a total dissolved solids (TDS) content of less than 10,000 ppm. The Revised DEIS or FEIS should identify the USDWs in the affected area, provide current groundwater quality data from drinking water wells in the vicinity of the Ray complex, and discuss how impacts to water quality would be prevented by Asarco's foreseeable actions.

The Revised DEIS or FEIS should provide the hydrogeologic parameters and character of fracture permeability in the affected area, as we previously requested. The groundwater system should be modelled for baseline conditions, future conditions, and ultimate equilibrium conditions; including cones of depression, transport and fate of leachate from "waste rock" (leachable or potentially leachable material) deposition areas under BADCT conditions, prediction of pit lakes at Ray and Copper Butte, and effects of groundwater flow direction near the Ray pit on groundwater supply to the Gila River. Bedrock underlying RM-17 is mostly granitics with low permeability, but characterization of weathered granite and fracture permeability still must be provided. The DEIS implies that with proper mine design for the Ray expansion and Copper Butte, potential significant impacts (aside from visual, noise and air impacts to the wilderness area) could probably be mitigated to less than significant. The Revised DEIS or FEIS should provide assurances and specific information for this.

The DEIS (p. 1-19) states that the Gila River Indian Community holds rights to approximately 1.6 million acre-feet per year of water from the Gila River. Elsewhere, the DEIS (p. 4-15) states that groundwater quantity may be depleted if mining operations require local groundwater withdrawals. The Revised DEIS or FEIS should discuss whether this would affect BLM's federal trust responsibilities to protect the tribe's water interests, as well as associated environmental justice implications under Executive Order 12898 and the Department of Interior environmental justice strategy.

Riparian and Aquatic Habitat

The Revised DEIS or FEIS should include an estimate of acres and functions of surface waters, including wetlands, springs, riparian zones, and ephemeral streams in the affected

environment, and historical waters that have already been disturbed. The Revised DEIS or FEIS should also describe the specific plans for foreseeable uses on parcels with surface waters and discuss how these waters could be affected, including estimated acreages and functions. The document should describe and discuss aquatic resources, including native fisheries, that could be affected, and estimate the acreage or riparian habitat that could be affected. Impacts to both surface water and groundwater quality should be discussed.

We suggest that some of this information may be available if the Phoenix field office has implemented BLM's *Riparian-Wetland Initiative for the 1990's* (1991) and its *Riparian Area Management: Process for Assessing Proper Functioning Condition* (1993). Another method of achieving a planning level inventory is to gather aerial photography of the various sites. If the larger sites contain segments of different geomorphological character, each segment should be analysed separately. A person familiar with interpretation of aerial photography should make estimates of the length, width, and type (perhaps Cowardin classification, or some other standard classification system) of all streams and wetlands on the parcels. These estimates should have some degree of ground-truthing to establish the validity of the estimates (a rough estimate of variance). The ground-truthing could be done in concert with currently ongoing surveys, and/or by using delineations of waters done in the past. Ground truthing need not be done on each unit, if there is reason to believe that several units have very similar characteristics, including gradients, stream frequencies, and stream types.

In addition to an inventory, there should be a functional assessment of the waters found on the various parcels. Use of the Cowardin system would facilitate that assessment since it is based on habitat types. This section can be simply descriptive, as long as it carefully describes habitat functions, water quality functions, and flood flow characteristics.

Waters of the U.S. and Clean Water Act Section 404 process

The discussion should make clear that this inventory would be refined into a more precise delineation of waters of the U.S. at the time of Clean Water Act Section 404 permitting. Definitions of ordinary high water, wetland boundary, and the lateral extent of waters should be included in the discussion.

The Revised DEIS or FEIS should also include information on maximal areas of waters of the U.S. that Asarco could need in the future, including a discussion of waters and wetlands in Mineral Creek below Big Box Dam. The Revised DEIS or FEIS should discuss the 404 permitting process in some detail, making clear to the reader that a decision about the eventual uses of many of the selected parcels will be made during that permitting process. The discussion should note the differences between the Corps' NEPA evaluations and those done by the BLM. Concepts such as "least environmentally damaging practicable alternative,"

"avoidance," "minimization," "compensatory mitigation," "in-kind mitigation," "functions and values," "ESA Section 7 coordination," "106 co-ordination," and "401 certification" should be developed as part of the discussion.

Floodplains

The DEIS states that floodplains are not considered a major issue. According to page 4-51, however, approximately 180 acres of selected lands are located within the 100-year floodplain. Pursuant to Executive Order No. 11988, Section 3(d), when property in floodplains is proposed for disposal to non-Federal public or private parties, the Federal agency shall (1) reference in the conveyance those uses that are restricted under identified Federal, State, or local floodplain regulations; and (2) attach other appropriate restrictions to the uses of properties by the grantee or purchaser and any successors, except where prohibited by law; or (3) withhold such properties from conveyance. The Revised DEIS or FEIS should address this issue in more detail by including a map with floodplains in the selected lands, as well as identifying all applicable Federal, State, and local floodplain regulations, and any actions that BLM would need to take in order to comply with this Executive Order.

Air Quality

The DEIS does not sufficiently describe the potential air pollutant emissions for the foreseeable future projects and analyse the impacts of those emissions. The DEIS states that no increase in PM10 emissions would be allowed under current regulations. In a February 2, 1998, meeting, however, Asarco indicated that expanding the Ray Complex would require major modifications to its Ray Mine Title V permit. It is unclear how the continuation of excavating and processing Ray ore along with the excavation, haulage and processing of Copper Butte ore would not increase air emissions, particularly PM10 emissions. The Revised DEIS or FEIS should provide more detailed information on the potential impacts of each alternative to air quality, including haul distances and estimated emissions from the expanded Ray/Copper Butte area.

The DEIS does not provide sufficient information regarding existing air quality on the Selected Lands. PM10 is the only criteria pollutant for which ambient concentrations are provided for the Ray Complex, Copper Butte/Buckeye, Chilito/Hayden area and Casa Grande. According to the DEIS (p. 3-31), however, ADEQ also collects air quality data for lead in Hayden; sulfur dioxide in Hayden, Winkelman and Chilito; and carbon monoxide and ozone in Casa Grande. In addition, we understand that a report on the results of a fugitive particulate emissions study at the Asarco Hayden Smelter was prepared in 1995, and could provide this information. The Revised DEIS or FEIS should include this information. The Revised DEIS or FEIS should also identify air toxics, (e.g., lead, arsenic, and selenium) monitored at the Hayden smelter, mill, and tailings impoundments, where copper originating from the Ray

Complex would continue to be processed. The Revised DEIS or FEIS should provide existing and projected emissions data for these other pollutants, discuss their impacts on human health, and include a map depicting sampling locations.

As stated on page 2 above, BLM is obligated to pursue information necessary for the NEPA analysis, regardless of the company's willingness to cooperate and provide the information. We believe that Asarco has very specific plans for the selected lands, including mining rates the company hopes to attain within at least the first ten years of the Ray expansion, as well as the Copper Butte project. Based on Asarco's short-term and long-term goals for operations at the Ray Complex, Copper Butte, and Chilito/Hayden, the Revised DEIS or FEIS should provide estimates of air emissions for all criteria pollutants, in addition to relevant air toxics, at all Selected Lands sites. Simply stating that no increase in PM10 emissions would be permitted does not provide information on expected emissions for PM10 or criteria pollutants, their effect on the State Implementation Plan (SIP), or how they would affect Prevention of Significant Deterioration increments in the attainment area that constitutes part of the selected lands (i.e., Copper Butte area) or in nearby Class I areas. This information should be provided in the Revised DEIS or FEIS.

Environmental Justice

The DEIS (pp. 3-61,62) provides some low-income and minority population information for the counties where the selected lands are located. No site-specific analysis is provided, however, for either the affected environment or in the context of the environmental consequences. In an April 21, 1998, meeting, BLM stated that Battle Axe Road is near an "environmental justice" community. However, the potential impacts to this community are not evaluated with respect to its low-income or minority status. The conclusion on page 4-42 that there would be no disproportionate adverse human health or environmental effects on minority and low-income populations is not analysed and, therefore, unjustified in the DEIS. Additional information is needed in the Revised DEIS or FEIS in order to justify such a statement. The revised DEIS or FEIS must be consistent with Executive Order 12898, Department of Interior's environmental justice strategy, and the Council on Environmental Quality's environmental justice guidance to Federal agencies.

Minerals and Land Management

BLM's stated project purposes are to improve resource management efficiency by: 1) disposing heavily encumbered, isolated and difficult-to-manage public lands; 2) acquiring lands that will consolidate ownership patterns within wilderness and special management areas; and 3) acquiring lands with fewer encumbrances and higher resource values. In light of these objectives, EPA urges BLM to withdraw the offered lands from mineral entry, especially for *all* parcels that have at least a moderate mineral potential.

We understand that BLM intends to withdraw Tomlin parcel #4 from mineral entry if the land exchange is completed. According to BLM's Mineral Report for the offered lands, Tomlin parcel #3 also has a moderate potential for metallic minerals. We recommend that this parcel also be withdrawn from mineral entry.

Section 25 in the McCracken parcels also exhibits moderate mineral potential (DEIS, p. 2-3). We recommend that this parcel be withdrawn from mineral entry.

We recommend that BLM commit to closing the Sacramento Valley parcel to salable minerals (e.g., decorative rock boulders).

According to the 1993 Kingman Resource Area Resource Management Plan (RMP) final EIS, one of the objectives of the RMP is to achieve proper functioning condition for riparian areas (DEIS, p. H-10). The RMP EIS illustrated this need by identifying several areas of severe/critical erosion, including the Big Sandy River and Sacramento valleys. In order to meet this objective, BLM indicated that it would prepare/revise activity plans involving riparian-wetland areas prescribing actions to meet management objectives. It is unclear whether the activity plan has been developed for the Kingman Resource Area. If so, for the purpose of cumulative impact analysis, the Revised DEIS or FEIS should include a summary of the plan and discuss how effective it has been thus far. The Revised DEIS or FEIS should also discuss how management of the offered parcels would be consistent with the RMP objectives and describe the methods that would be used to improve riparian areas (e.g., exclosure fencing around riparian zones, piping of water outside to grazing animals, rotation of livestock). We previously recommended (April 12, 1991, DEIS comment letter from Deanna Wieman, EPA, to Elaine Marquis, BLM) on the RMP that these areas be closed to livestock grazing. Depending on the success of the activity plan, this may still be a desirable option.

In addition, the 1988 Phoenix District RMP indicated that an activity plan for the Gila River Riparian Management Area would be developed (DEIS, p. H-5). If this plan exists, for the purpose of cumulative impact analysis, the Revised DEIS or FEIS should include a summary of it and discuss how management of the Gila River parcel would be consistent with it. What methods would be used to improve riparian areas (e.g., exclosure fencing around riparian zones, piping of water outside to grazing animals, rotation of livestock)?

The specific potential impacts of routes #1 and #2 to replace Battle Axe Road are not discussed in the DEIS. It appears, however, that Route #1 would have a greater adverse environmental impact than Route #2 because it would be located in Walnut Canyon wash and adjacent to the White Canyon Wilderness boundary for approximately 1.3 miles. Route #2 would be further removed from the wilderness, which would reduce noise, air quality, odor, flora and fauna, and visual impacts to the wilderness area and would not be located in a wash.

The Revised DEIS or FEIS should discuss these impacts, as well as any other impacts that could result from building routes #1 or #2. The Revised DEIS or FEIS should also discuss the impacts associated with using Battle Axe Road for mining operations. We recommend that BLM seriously consider developing Route #2 to replace access to the wilderness area, with a design sufficient to prevent any safety problems.

Mitigation of Impacts

The DEIS does not discuss mitigation measures for many potential indirect impacts from the land exchange. For example, the DEIS (p. 4-51) indicates that federal reserved water rights would be irretrievably lost. It also appears that there would be a net loss of waters of the U.S., including wetlands, as well as floodplains, and groundwater quality could be adversely affected down-gradient of certain mining facilities even though aquifer water quality standards are met at specific point of compliance wells (DEIS, p. 4-15). The proposed alternative would cause impacts to: eight roosts providing potential habitat for Townsend's big-eared bat, California leaf-nosed bat and cave myotis on Parcels RM-1, RM-8, RM-10 and RM-18; desert tortoise habitat; 1,150 acres of potential habitat for chuckwalla; longfin dace in Walnut Creek; and 40 acres of potential habitat for Western burrowing owl on CG-3; and eliminate an artificial pond containing lowland leopard frog (DEIS, p. 2-24). The DEIS states that BLM would acquire habitat for ten special status wildlife species, including thousands of acres for Category I and II desert tortoise habitat. It does not, however, specifically indicate how the impacts to other species would be mitigated on the Offered Lands or elsewhere. Pursuant to 40 CFR 1502.14(f) and 1502.16(h), the Revised DEIS or FEIS should discuss means to mitigate adverse environmental impacts. The Revised DEIS or FEIS should identify and discuss appropriate provisions that could be included in the land exchange in order to mitigate or offset potential direct, indirect, or cumulative impacts of the proposed project and alternatives.

A matrix table, similar to Table 2-7 in the DEIS, with mitigation measures associated with potential impacts would be extremely useful in the Revised DEIS or FEIS.